Mr. Daniel F. Brown
Phend & Brown, Inc.
P.O. Box 150
Milford, IN 46542-0150

Re: 085-03111
First Significant Revision to
FESOP 085-6229-03111

Dear Mr. Brown:

Phend & Brown, Inc. was issued a permit on December 10, 1996 for a hot batch mix asphalt concrete source. A letter requesting changes to this permit was received on February 29, 2000. Pursuant to the provisions of 326 IAC 2-8-11.1 a significant permit revision to this permit is hereby approved as described in the attached Technical Support Document.

The source is replacing the present rotary 52.0 mmBtu aggregate dryer with a 160.0 mmBtu unit. This modification will also include the replacement of the asphalt batch mix plant with a continuous mix process. The net change in production capacity following these modification will be from 160 to 400 tons per hour.

The following construction conditions are applicable to the proposed project:

1. General Construction Conditions
The data and information supplied with the application shall be considered part of this source modification approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Management (OAM).

2. This approval to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

3. Effective Date of the Permit
Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.

4. Pursuant to 326 IAC 2-1.1-9 (Revocation), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

5. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.

Pursuant to 326 IAC 2-8-11.1, this permit shall be revised by incorporating the significant permit revision into the permit. All other conditions of the permit shall remain unchanged and in effect. Please attach a copy of this modification and the following revised permit pages to the front of the original permit.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter, please contact Phillip Ritz, c/o OAM, 100 North Senate Avenue, P.O. Box 6015, Indianapolis, Indiana, 46206-6015, or call (800) 451-6027, press 0 and ask for extension (3-6878), or dial (973) 575-2555, extension 3241.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Management

Attachments
PR/EVP
cc: File - Kosciusko County
U.S. EPA, Region V
Kosciusko County Health Department
Air Compliance Section Inspector - Doyle Houser
Compliance Data Section - Jerri Curless
Administrative and Development - Janet Mobley
Technical Support and Modeling - Michelle Boner

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP) OFFICE OF AIR MANAGEMENT

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015
Phone: 1-800-451-6027

Phend & Brown, Inc.

SR 19 & 1 Mile North of SR 10, Etna Green, IN 46524

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the facilities listed in Section A (Source Summary) of this permit.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 and contains the conditions and provisions specified in 326 IAC 2-8 and 40 CFR Part 70.6 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments)
and IC 13-15 and IC 13-17 (prior to July 1, 1996, IC 13-1-1-4 and IC 13-7-10).

Operation Permit No.: F085-6229-03111	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date: December 10, 1996
First Significant FESOP Modification SPR 085-11941-03111	Pages Affected: 4, 20, 21, 22, 23, 23a, 24, 25, 28 and 29
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:

SECTION A SOURCE SUMMARY

A.1 General Information

The Permittee owns and operates a hot batch mix asphalt concrete source.

Responsible Official:	Daniel F. Brown
Source Address:	SR 19 Approx. 1 mile north of SR 10 near Etna Green, IN 46524
Mailing Address:	P. O. Box 150, Milford, Indiana 46542-0150
SIC Code:	2951
County Location:	Kosciusko
County Status:	Attainment for all criteria pollutants
Source Status:	Synthetic Minor Source, FESOP Program

A.2 Emission Units and Pollution Control Summary

The stationary source consists of the following emission units and pollution control devices:

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(a) one (1) aggregate rotary dryer, identified as unit No. 2 with a maximum capacity of processing 400 tons of aggregates per hour, equipped with one (1) No. 4 fuel oil fired aggregate dryer burner with a maximum rated capacity of 160.0 million (MM) British thermal units (Btu) per hour using No. 2 distillate fuel oil and waste oil as back-up fuels, and one (1) baghouse for air pollution control, exhausting at one (1) stack, identified as SV-1;
(b) one (1) 4' x 16' 3-deck screen;
(c) two (2) conveyors to transfer aggregates from feed bins to asphalt dryer; and
(d) production of cold-mix (stock pile mix) asphalt concrete.

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A.3 Insignificant Activities

This stationary source also includes the following insignificant activities, as defined in 326 IAC 2-7-1(20):

(a) one (1) distillate No. 2 fuel oil fired liquid asphalt tank heater, with a maximum capacity of 1.4 million British thermal units per hour, exhausting at one (1) stack, identified as SV2;
(b) four (4) raw aggregate storage piles with a total storage capacity of 53,000 tons;
(c) one (1) reclaimed asphalt pavement storage pile with a total storage capacity of 21,600 tons;
(d) one (1) 15,000 gallon No. 4 fuel oil storage tank identified as SV3;
(e) one (1) 15,000 gallon asphalt emulsion storage tank identified as SV4;
(f) one (1) 15,000 gallon asphalt cement storage tank identified as SV5;
(g) one (1) 10,000 gallon No. 2 fuel oil storage tank identified as SV6;
(h) one (1) 2,000 gallon #2 fuel oil storage tank identified as SV7;
(i) one (1) 1,000 gallon diesel fuel oil storage tank identified as SV8;
(j) one (1) reclaim asphalt storage vin with conveyor;
(k) unpaved roads with public access;
(l) five (5) virgin aggregate feeder bins; and
(m) one (1) bucket elevator with 18" x 8" buckets.

A.4 FESOP Applicability [326 IAC 2-8-2]

This stationary source, otherwise required to have a Part 70 permit as described in 326 IAC 2-7-2(a), has applied to Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM) for a Federally Enforceable State Operating Permit (FESOP).

SECTION D.1 FACILITY OPERATION CONDITIONS

(a)	one (1) aggregate rotary dryer, identified as unit No. 2 with a maximum capacity of processing 400 tons of aggregates per hour, equipped with one (1) No. 4 fuel oil fired aggregate dryer burner with a maximum rated capacity of 160.0 million (MM) British thermal units (Btu) per hour using No. 2 distillate fuel oil and waste oil as back-up fuels, and one (1) baghouse for air pollution control, exhausting at one (1) stack, identified as SV-1;
(b)	one (1) 4' x 16' 3-deck screen; and
(c)	two (2) conveyors to transfer aggregates from feed bins to asphalt dryer.

Emissions Limitations and Standards [326 IAC 2-8-4(1)] [326 IAC 6-3] [326 IAC 12] [40 CFR Part 60.90]

D.1.1 Particulate Matter [326 IAC 12] [40 CFR 60.90, Subpart I]

Pursuant to 326 IAC 12, (40 CFR Part 60.90, Subpart I) "Standards of Performance for Hot Mix Asphalt Facilities", the particulate matter emissions from the mixing and drying operations shall be limited to 0.04 grains per dry standard cubic foot (gr/dscf). This is equivalent to a particulate matter emission rate of 16.26 pounds per hour. Compliance with this limit makes 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 not applicable.

D.1.2 Opacity [326 IAC 12] [40 CFR 60.90, Subpart I]

Pursuant to 326 IAC 12, (40 CFR Part 60.92, Subpart I) "Standards of Performance for Hot Mix Asphalt Facilities", the mixing and drying operations shall not discharge or cause the discharge into the atmosphere any gases which exhibit 20% opacity or greater.

D.1.3 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the facility described in this section except when otherwise specified in 40 CFR Part 60, Subpart I.

D.1.4 Sulfur Dioxide (SO_2)[326 IAC 7-1.1]

Pursuant to 326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations), sulfur dioxide emissions from the 52 million British thermal units per hour burner for the aggregate dryer shall be limited to 0.5 and 1.6 pounds per million British thermal units heat input for No. 4 (or No. 2) fuel oil and re-refined waste oil, respectively. This is equivalent to a sulfur content of less than or equal to 0.5 percent when using No. 4 (or No. 2) fuel oil and 1.5 percent when using re-refined waste oil, respectively. Pursuant to 326 IAC 7-1.1-2, this sulfur dioxide limit applies at all times including periods of startup, shutdown and malfunction.

D.1.5 Fuel Oil Usage [326 IAC 2-8-4]

Pursuant to 326 IAC 2-8-4(1), the following limit shall apply:

(a) the input of No. 2 distillate fuel oil with a maximum sulfur content of 0.5% and waste oil equivalents to the 160.0 MMBtu per hour burner for the aggregate dryer shall be limited to 2,694,930 U.S. gallons per 365 day period, rolled on a daily basis, so that SO_2 emissions are limited below 100 tons per year. During the first 365 days of operation under this permit, the input of No. 2 distillate fuel oil and No. 2 distillate fuel oil equivalents shall be limited such that the total gallons divided by the accumulated days of operation shall not exceed 7,383 U.S. gallons per day.

(b) For purposes of determining compliance, the following shall apply:

(1) every 1,000 gallons of No. 4 distillate fuel oil burned shall be equivalent to 946.7 gallons of No. 2 distillate fuel oil based on SO_2 emissions and a maximum sulfur content of 0.5 percent such that the total gallons of No. 2 distillate fuel oil and No. 2 distillate fuel oil equivalent input does not exceed the limit specified.

(2) every 1,000 gallons of waste oil burned shall be equivalent to 644.0 gallons of No. 2 distillate fuel oil based on SO_2 emissions and a maximum sulfur content of 0.75 percent such that the total gallons of No. 2 distillate fuel oil and No. 2 distillate fuel oil equivalent input does not exceed the limit specified.

Therefore, the requirements of 326 IAC 2-7 will not apply.

D.1.6 Particulate Matter 10 Microns (PM-10) [326 IAC 2-8-4]

Pursuant to 326 IAC 2-8-4, particulate matter 10 microns emissions from the aggregate mixing and drying operation shall not exceed 18.57 pounds per hour, including both filterable and condensible fractions. Compliance with this limit will satisfy 326 IAC 2-8-4. Therefore, the Part 70 rules (326 IAC 2-7) do not apply.

D.1.7 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

A Preventive Maintenance Plan, in accordance with Condition B.13 of this permit, is required for each facility.

Testing Requirements [326 IAC 2-8-4(3)]

D.1.8 Particulate Matter

During the period between 30 months and 36 months after issuance of this permit, the Permittee shall perform PM and PM10 testing utilizing Methods 5 or 17 (40 CFR Part 60 Appendix A) for PM and Methods 201 or 201A and 202 (40 CFR 51, Appendix M) for PM-10, or other methods as approved by the Commissioner. This test shall be repeated at least once every five years from the date of this valid compliance demonstration. PM10 includes filterable and condensible PM10. In addition to these requirements, IDEM may require compliance testing when necessary to determine if the facility is in compliance.

D.1.9 Sulfur Dioxide Emissions and Sulfur Content

Compliance shall be determined utilizing one of the following options.

(a) Pursuant to 326 IAC 3-7-4, the Permittee shall demonstrate that the waste oil sulfur content does not exceed 0.75% by weight and the No. 2 and No. 4 distillate fuel oil sulfur content does not exceed 0.5% by weight by:

(1) Providing vendor analysis of fuel delivered, if accompanied by a certification;

(2) Analyzing the oil sample to determine the sulfur content of the oil via the procedures in 40 CFR 60, Appendix A, Method 19.

(A) Oil samples may be collected from the fuel tank immediately after the fuel tank is filled and before any oil is combusted; and

(B) If a partially empty fuel tank is refilled, a new sample and analysis would be required upon filling; or

(b) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the 160.0 MMBtu per hour burner for the aggregate dryer, using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6.

A determination of noncompliance pursuant to either of the methods specified in (a) or (b) above shall not be refuted by evidence of compliance pursuant to the other method.

D.1.10 Particulate Matter (PM)

The baghouse for PM control shall be in operation at all times when the aggregate mixing and drying process is in operation.

Compliance Monitoring Requirements [326 IAC 2-8-5(a)(1)]

D.1.11 Visible Emission Notations

(a) Visible emission notations of the aggregate dryer and batch tower baghouse stack exhaust shall be performed once per shift during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

D.1.12 Parametric Monitoring

The Permittee shall record the total static pressure drop across the baghouse used in conjunction with the aggregate dryer and batch tower, at least once daily when the aggregate mixing and drying process is in operation when venting to the atmosphere. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the baghouse shall be maintained within the range of 1.0 and 6.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge Specifications, of this permit, shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

D.1.13 Baghouse Inspections

An inspection shall be performed each calender quarter of all bags controlling the aggregate dryer and batch tower when venting to the atmosphere. A baghouse inspection shall be performed within three months of redirecting vents to the atmosphere and every three months thereafter. Inspections are optional when venting indoors. All defective bags shall be replaced.

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)]

D.1.14 Record Keeping Requirements

(a) To document compliance with Conditions D.1.4 and D.1.5, the Permittee shall maintain records in accordance with (1) through (6) below.

(1) Calendar dates covered in the compliance determination period;

(2) Actual fuel oil usage since last compliance determination period and equivalent sulfur dioxide emissions;

(3) A certification, signed by the owner or operator, that the records of the fuel supplier certifications represent all of the fuel combusted during the period; and

If the fuel supplier certification is used to demonstrate compliance the following, as a minimum, shall be maintained:

(4) Fuel supplier certifications.

(5) The name of the fuel supplier; and

(6) A statement from the fuel supplier that certifies the sulfur content of the fuel oil.

The Permittee shall retain records of all recording/monitoring data and support information for a period of five (5) years, or longer if specified elsewhere in this permit, from the date of the monitoring sample, measurement, or report. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit.

(b) To document compliance with Condition D.1.11, the Permittee shall maintain records of visible emission notations of the aggregate dryer and batch tower baghouse stack exhaust once per shift.

(c) To document compliance with Condition D.1.12, the Permittee shall maintain the following:

(1) Daily records of the following operational parameters during normal operation when venting to the atmosphere:

(A) Inlet and outlet differential static pressure.

(2) Documentation of all response steps implemented, per event .

(3) Operation and preventive maintenance logs, including work purchases orders, shall be maintained.

(4) Quality Assurance/Quality Control (QA/QC) procedures.

(5) Operator standard operating procedures (SOP).

(6) Manufacturer's specifications or its equivalent.

(7) Equipment "troubleshooting" contingency plan.

(d) To document compliance with Conditions D.1.12 and D.1.13, the Permittee shall maintain records of the results of the inspections required under Conditions D.1.12 and D.1.13 and the dates the vents are redirected.

(e) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.15 Used Oil Requirements

The waste oil burned in the aggregate dryer burner shall comply with the used oil requirements specified in 329 IAC 13 (Used Oil Management). Pursuant to 329 IAC 13-3-2 (Used Oil Specifications), used oil burned for energy recovery that is classified as off-specification used oil fuel shall comply with the provisions of 329 IAC 13-8 (Used Oil Burners Who Burn Off-specification Used Oil For Energy Recovery), including:

(a) Receipt of an EPA identification number as outlined in 329 IAC 13-8-3 (Notification),

(b) Compliance with the used oil storage requirements specified in 329 IAC 13-8-5 (Used Oil Storage), and

(c) Maintaining records pursuant to 329 IAC 13-8-6 (Tracking).

The burning of mixtures of used oil and hazardous waste that is regulated under 329 IAC 3.1 is prohibited at this source.

D.1.16 Quarterly Reporting

A quarterly summary to document compliance with operation conditions numbers D.1.4 and D.1.5 shall be submitted, to the address listed in condition C.16 - General Reporting Requirements, of this permit, using the enclosed forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported.

SECTION D.2 FACILITY OPERATION CONDITIONS

(d) Production of cold-mix (stock pile mix) asphalt concrete.

Emissions Limitations and Standards [326 IAC 2-8-4(1)] [326 IAC 8-5-2]

D.2.1 Volatile Organic Compounds (VOC)
Pursuant to 326 IAC 8-5-2 (Miscellaneous Operations: Asphalt Paving), the use of cutback asphalt or asphalt emulsion shall not contain more than seven percent (7 percent) oil distillate by volume of emulsion for any paving application except the following purposes:

1) penetrating prime coating
2) stockpile storage
3) application during the months of November, December, January, February and March.

D.2.2 Cold-Mix (Stockpile Mix) VOC Usage [326 IAC 2-8-4]
The VOC usage in the production of cold mix (stockpile mix) asphalt shall be limited to 81.80 tons per 365 consecutive day period, rolled on a daily basis. The total for each day shall not exceed the difference between the annual usage limit minus the sum of actual usage from the previous 364 days. This is equivalent to 77.71 tons of diluent used per 365 day period in the production of cold mix (stockpile mix) asphalt based on 95% volatilization. During the first 365 days of operation under this permit, the usage of diluent shall be limited such that the total usage divided by the accumulated days of operation shall not exceed 448 pounds per day. Therefore, the requirements of 326 IAC 2-7 will not apply.

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)]

D.2.3 Record Keeping Requirements

(a) To document compliance with Condition D.2.2, the Permittee shall maintain records in accordance with (1) through (4) below. Records maintained for (1) through (4) shall be taken monthly and shall be complete and sufficient to establish compliance with the VOC usage limits and/or the VOC emission limits established in Condition D.2.2.

(1) diluent used in production of cold mix asphalt per day;

(2) amount of diluent used last 365 days;

(3) type of liquid binder used; and

(4) percent diluent (oil distillate) in liquid binder.

(b) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.2.4 Quarterly Reporting
A quarterly summary to document compliance with operation condition number D.2.2 shall be submitted, to the address listed in condition C.16 - General Reporting Requirements, using the enclosed forms or their equivalent, within thirty (30) days after the end of the quarter being reported.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR MANAGEMENT
COMPLIANCE DATA SECTION

FESOP Quarterly Report

Source Name: Phend & Brown, Inc.
Source Address: SR 19 approx. 1 mile north of SR 10 near Etna Green, Indiana 46524
FESOP No.: F085-6229-03111
Facility: 160 million British thermal units per hour burner for the aggregate dryer
Parameter: sulfur dioxide
Limits: (a) the input of No. 2 distillate fuel oil with a maximum sulfur content of 0.5% and waste oil equivalents to the 160.0 MMBtu per hour burner for the aggregate dryer shall be limited to 2,694,930 U.S. gallons per 365 day period, rolled on a daily basis, so that SO_2 emissions are limited below 100 tons per year. During the first 365 days of operation under this permit, the input of No. 2 distillate fuel oil and No. 2 distillate fuel oil equivalents shall be limited such that the total gallons divided by the accumulated days of operation shall not exceed 7,383 U.S. gallons per day.

(b) For purposes of determining compliance, the following shall apply:

(1) every 1,000 gallons of No. 4 distillate fuel oil burned shall be equivalent to 946.7 gallons of No. 2 distillate fuel oil based on SO_2 emissions and a maximum sulfur content of 0.5 percent such that the total gallons of No. 2 distillate fuel oil and No. 2 distillate fuel oil equivalent input does not exceed the limit specified.

(2) every 1,000 gallons of waste oil burned shall be equivalent to 644.0 gallons of No. 2 distillate fuel oil based on SO_2 emissions and a maximum sulfur content of 0.75 percent such that the total gallons of No. 2 distillate fuel oil and No. 2 distillate fuel oil equivalent input does not exceed the limit specified.

Month: _____ **Year:** _____

Month	Sulfur Content (%)	Heat Content (Btu/gallon)	No. 4 Fuel usage (gal/month)	No. 4 equivalent Fuel usage (gal/month)	No. 4 and No. 4 equivalent Fuel usage last 12 months (gallons)

9 No deviation occurred in this month.

9 Deviation/s occurred in this month.
Deviation has been reported on: _____

Submitted by: _____
Title/Position: _____
Signature: _____
Date: _____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR MANAGEMENT
COMPLIANCE DATA SECTION
FESOP Quarterly Report

Source Name: Phend & Brown, Inc.
Source Address: SR 19 approx. 1 mile north of SR 10 near Etna Green, Indiana 46524
FESOP No.: F085-6229-03111
Facility: cold-mix (emulsified) asphalt
Parameter: volatile organic compounds (VOC)
Limit: The VOC usage in the production of cold mix (stockpile mix) asphalt shall be limited to 81.80 tons per 365 consecutive day period, rolled on a daily basis. The total for each day shall not exceed the difference between the annual usage limit minus the sum of actual usage from the previous 364 days. This is equivalent to 77.71 tons of diluent used per 365 day period in the production of cold mix (stockpile mix) asphalt based on 95% volatilization. During the first 365 days of operation under this permit, the usage of diluent shall be limited such that the total usage divided by the accumulated days of operation shall not exceed 448 pounds per day.

Month: _____ **Year:** _____

Day	Diluent Usage This Day (tons)	Diluent Usage Last 364 days (tons)	365 Day Total Diluent Usage (tons)	Day	Diluent Usage This Day (tons)	Diluent Usage Last 364 days (tons)	365 Day Total Diluent Usage (tons)
1				17			
2				18			
3				19			
4				20			
5				21			
6				22			
7				23			
8				24			
9				25			
10				26			
11				27			
12				28			
13				29			
14				30			
15				31			
16							

9 No deviation occurred in this month.
9 Deviation/s occurred in this month.
Deviation has been reported on: _____

Submitted by: _____
Title/Position: _____
Signature: _____
Date: _____

Indiana Department of Environmental Management
Office of Air Management

Technical Support Document (TSD) for a Significant Permit Revision to a Federally Enforceable State Operating Permit

Source Background and Description

Source Name:	**Phend & Brown, Inc.**
Source Location:	**SR 19 Approx. 1 mile north of SR 10 near Etna Green, IN 46524**
County:	**Kosciusko**
SIC Code:	**2951**
Operation Permit No.:	**F085-6229-03111**
Operation Permit Issuance Date:	**December 10, 1996**
Permit Revision No.:	**SPR 085-11941-03111**
Permit Reviewer:	**Phillip Ritz/EVP**

The Office of Air Management (OAM) has reviewed a revision application from Phend & Brown, Inc. relating to the operation of a hot continuous mix asphalt concrete source.

History

On February 29, 2000, Phend & Brown, Inc. submitted an application to the OAM requesting to increase production at their existing plant. Phend & Brown, Inc. was issued a Federally Enforceable State Operating Permit on December 10, 1996. The source is replacing the present rotary 52.0 mmBtu aggregate dryer with a 160.0 mmBtu unit. This modification will also include the replacement of the asphalt batch mix process with a continuous mix process. The net change in production capacity following these modifications will be from 160 to 400 tons per hour.

Permitted Emission Units and Pollution Control Equipment

The source consists of the following permitted emission units and pollution control devices:

(1) Operation Permit No. 99-09-88-3111 issued December 17, 1984, consisting of:
- (a) one (1) 4' x 16' 3-deck screen;
- (b) two (2) conveyors to transfer aggregates from feed bins to asphalt dryer; and
- (c) production of cold-mix (stock pile mix) asphalt concrete.

New Emission Units and Pollution Control Equipment Receiving Prior Approval

The application includes information relating to the prior approval for the construction and operation of the following equipment pursuant to 326 IAC 2-8-4(11):

(a) one (1) aggregate rotary dryer, identified as unit No. 2 with a maximum capacity of processing 400 tons of aggregates per hour, equipped with one (1) No. 4 fuel oil fired aggregate dryer burner with a maximum rated capacity of 160.0 million (MM) British thermal units (Btu) per hour using No. 2 distillate fuel oil and waste oil as back-up fuels, and one (1) baghouse for air pollution control, exhausting at one (1) stack, identified as SV-1.

Insignificant Activities

The source also consists of the following insignificant activities, as defined in 326 IAC 2-7-1(21):

(a) one (1) No. 2 distillate fuel oil-fired hot oil heater, identified as unit No. 17, with a maximum rated capacity of 1.5 MMBtu per hour, using natural gas as a back-up fuel, exhausting at one (1) stack, identified as SV2;
(b) four (4) raw aggregate storage piles with a total storage capacity of 53,000 tons;
(c) one (1) reclaimed asphalt pavement storage pile with a total storage capacity of 21,600 tons;
(d) one (1) 15,000 gallon No. 4 fuel oil storage tank, identified as No. 19, and exhausting to stack SV3;
(e) one (1) 15,000 gallon asphalt emulsion storage tank, identified as No. 20, and exhausting to stack SV4;
(f) one (1) 15,000 gallon asphalt cement storage tank, identified as No. 21, and exhausting to stack SV5;
(g) one (1) 10,000 gallon No. 2 fuel oil storage tank, identified as No. 22, and exhausting to stack SV6;
(h) one (1) 2,000 gallon No. 2 fuel oil storage tank, identified as No. 23, and exhausting to stack SV7;
(i) one (1) 1,000 gallon diesel fuel storage tank, identified as No. 29, and exhausting to stack SV8;
(j) unpaved roads with public access;
(k) five (5) virgin aggregate feeder bins;
(l) one (1) reclaimed asphalt bin with conveyor;
(m) one (1) bucket elevator with 18" x 8" buckets;
(n) one (1) mixer, with a maximum continuous mix holding capacity of 8,000 pounds per hour of virgin mix; and
(o) three (3) surge silos.

Existing Approvals

The source was issued a Federally Enforceable State Operating Permit (F085-6229-03111) on December 10, 1996.

Enforcement Issue

There are no enforcement actions pending.

Recommendation

The staff recommends to the Commissioner that the Significant Permit Revision be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on February 29, 2000.

Emission Calculations

See Appendix A of this document for detailed emissions calculations (Appendix A, pages 1 through 10.)

Potential To Emit of the Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA."

Pollutant	Potential To Emit (tons/year)
PM	8918.64
PM-10	2193.60
SO_2	464.21
VOC	11952.68
CO	17.07
NO_x	203.45

Note: For the purpose of determining Title V applicability for particulates, PM-10, not PM, is the regulated pollutant in consideration.

(a) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of PM10, SO_2, VOC, and NOx are equal to or greater than 25 tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-8-11.1(f)(1)(E).

Actual Emissions

The following table shows the actual emissions from the source. This information reflects the 1999 source pollutant emissions summary emission data.

Pollutant	Actual Emissions (tons/year)
PM	120.76
PM-10	50.46
SO_2	98.11
VOC	0.07
CO	63.07
NO_x	131.40
Acetaldehyde	2.28
Acrolein	0.05
Benzene	0.72
Ethylbenzene	0.67
Formaldehyde	4.21
Lead	0.01
Methy Ethyl Ketone	0.04
Napthalene	0.54
Propionaldehyde	0.23
Quinone	0.28
Toluene	1.31
Total POM	1.02
Xylene	0.28
Total HAPs	11.62

*total POM includes 2-Methylnapthalene, Acenapthalene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Fluoranthene, Fluorene, Naphthalene, Phenanthrene, and Pyrene.

Limited Potential to Emit

The table below summarizes the total potential to emit, reflecting all limits, of the significant emission units.

	Limited Potential to Emit (tons/year)						
Process/facility	PM	PM-10	SO_2	VOC	CO	NO_X	HAPs
Aggregate Dryer	8.64	1.98	95.67	21.28	6.74	59.95	20.41
Conveying/Handling	1.04	0.98	0.00	0.00	0.00	0.00	0.00
Unpaved Roads	36.55	15.40	0.00	0.00	0.00	0.00	0.00
Aggregate Storage	0.42	0.29	0.00	0.00	0.00	0.00	0.00
Cold-Mix Storage	0.00	0.00	0.00	77.71	0.00	0.00	0.00
Insignificant Combustion Units	0.09	0.05	3.33	0.02	6.97	0.94	0.00
Total Emissions	46.74	18.70	99.00	99.01	13.71	60.89	20.41

County Attainment Status

The source is located in Kosciusko County.

Pollutant	Status
PM-10	attainment
SO_2	attainment
NO_2	attainment
Ozone	attainment
CO	attainment
Lead	attainment

(a) Volatile organic compounds (VOC) and oxides of nitrogen (NOx) are precursors for the formation of ozone. Therefore, VOC and NO_X emissions are considered when evaluating the rule applicability relating to the ozone standards. Kosciusko County has been designated as attainment or unclassifiable for ozone.

Federal Rule Applicability

(a) This source is subject to the New Source Performance Standard, 326 IAC 12, (40 CFR 60.90, Subpart I) because it meets the definition of a hot mix asphalt facility pursuant to the rule and it was modified after June 11, 1973. This rule limits particulate matter emissions to 0.04 grains per dry standard cubic foot (gr/dscf) and also limits visible emissions to 20% opacity. This is equivalent to a particulate matter emission rate of 16.26 pounds per hour. The source will comply with this rule by using a baghouse to limit particulate matter emissions to less than 0.04 gr/dscf (see Appendix A, page 10 of 10, for detailed calculations).

(b) The three 15,000 gallon storage tanks (SV3, SV4 and SV5) as well as the 10,000 gallon and 2,000 gallon #2 fuel oil storage tanks (SV6 and SV7) are not subject to the New Source Performance Standard, 326 IAC 12, (40 CFR Part 60.110, Subpart K; 40 CFR Part 60.110a, Subpart Kb; and 40 CFR Part 60.110b, Subpart Kb) "Standards of Performance for Volatile Organic Liquid Storage Vessels" since all five (5) storage tanks are constructed before June 11, 1973. The 1,000 gallons storage tank (SV8) is not subject to the New Source Performance Standard, 326 IAC 12, (40 CFR Part 60.110, Subpart K; 40 CFR Part 60.110a, Subpart Kb; and 40 CFR Part 60.110b, Subpart Kb) "Standards of Performance for Volatile Organic Liquid Storage Vessels" since the design capacity is less than $40m^3$.

(c) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63) applicable to this source.

State Rule Applicability - Entire Source

326 IAC 2-6 (Emission Reporting)

This source is not subject to 326 IAC 2-6 (Emission Reporting), which would require the source to submit an annual emission statement. Pursuant to this rule, any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is enforceable. This source, which is located in Kosciusko County, has accepted federally enforceable operation conditions which limit emissions of PM10, SO_2, VOC, and NOx to below 100 tons per year per pollutant, therefore, 326 IAC 2-6 does not apply.

326 IAC 2-2 (Prevention of Significant Deterioration)

This source is not subject to 326 IAC 2-2 (PSD) as it has accepted federally enforceable operation conditions which limit emissions of PM-10 to below 250 tons per 12-month period. Also, controlled PM emissions are below 250 tons per year. Additionally, particulate matter emissions are limited by 40 CFR 60.90, Subpart I to 16.26 pounds per hour. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

326 IAC 2-8-4 (FESOP)

This source is subject to 326 IAC 2-8-4 (FESOP). Pursuant to this rule, the usage of No. 2 distillate fuel oil with a sulfur content of 0.50% and No. 2 distillate fuel oil equivalents in the 160.0 MMBtu per hour burner for the aggregate dryer shall be limited to 2,694,930 U.S. gallons per 365 day period, rolled on a daily basis, so that SO_2 emissions are limited below 100 tons per year. The VOC usage in the production of cold mix (stockpile mix) asphalt shall be limited to 81.80 tons per 365 day period, rolled on a daily basis. This is equivalent to 77.71 tons of diluent used per 365 day period in the production of cold mix (stockpile mix) asphalt based on 0.95% volatilization. Also, PM-10 emissions from the aggregate dryer shall be limited to 18.57 pounds per hour. The source will comply with the PM-10 emission limit by utilizing a baghouse for controlling PM-10 emissions to less than 18.57 pounds per hour from the aggregate dryer. Therefore, the requirements of 326 IAC 2-7 do not apply.

326 IAC 5-1 (Visible Emissions Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

326 IAC 6-4 (Fugitive Dust Emissions)

This source is subject to 326 IAC 6-4 for fugitive dust emissions. Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions), fugitive dust shall not be visible crossing the boundary or property line of a source. Observances of visible emissions crossing property lines may be refuted by factual data expressed in 326 IAC 6-4-2(1), (2) or (3).

State Rule Applicability - Individual Facilities

326 IAC 6-3-2 (Process Operations)

The aggregate mixing and drying operation is not subject to the requirements of 326 IAC 6-3-2. This rule does not apply if the limitation established in the rule is not consistent with applicable limitations in 326 IAC 6-1 or 326 IAC 12. Since the applicable PM limit established by 326 IAC 12, 40 CFR 60, Subpart I, is less than the PM limit that would be established by 326 IAC 6-3-2 (66.0 pounds per hour, see Appendix A, page 10 of 10), the more stringent limit applies and the limit pursuant to 326 IAC 6-3-2 does not apply.

326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations)

The sulfur dioxide emissions from the 160.0 MMBtu/hr dryer burning waste oil shall be limited to 1.6 pounds per MMBtu heat input. This equates to a fuel oil sulfur content limit of 1.5%. Therefore, the sulfur content of the fuel must be less than or equal to 1.5% in order to comply with this rule (See Appendix A, Page 10 of 10 for detailed calculations). The source will comply with this rule by using waste oil with a sulfur content of 1.5% or less.

The sulfur dioxide emissions from the 160.0 MMBtu/hr dryer burning distillate oil shall be limited to 0.5 lb/MMBtu heat input. This equates to a fuel oil sulfur content limit of 0.5%. Therefore, the sulfur content of the fuel must be less than or equal to 0.5% in order to comply with this rule (See Appendix A, Page 10 of 10 for detailed calculations). The source will comply with this rule by using No. 2 distillate fuel oil with a sulfur content of 0.5% or less.

The sulfur dioxide emissions from the 160.0 MMBtu/hr dryer burning No.4 fuel oil shall be limited to 0.5 lb/MMBtu heat input. This equates to a fuel oil sulfur content limit of 0.49%. Therefore, the sulfur content of the fuel must be less than or equal to 0.49% in order to comply with this rule (See Appendix A, Page 10 of 10 for detailed calculations). The source will comply with this rule by using No. 2 distillate fuel oil with a sulfur content of 0.5% or less.

326 IAC 7-2-1 (Sulfur Dioxide Reporting Requirements)

This source is subject to 326 IAC 7-2-1 (Reporting Requirements). This rule requires the source to submit to the Office of Air Management upon request records of sulfur content, heat content, fuel consumption, and sulfur dioxide emission rates based on a calendar-month average.

326 IAC 8-5-2 (Miscellaneous Operations: Asphalt Paving)

No person shall cause or allow the use of cutback asphalt or asphalt emulsion containing more than seven percent (7%) oil distillate by volume of emulsion for any paving application except the following purposes:

1) penetrating prime coating
2) stockpile storage
3) application during the months of November, December, January, February and March.

This source manufactures stockpile mix for stockpile storage only, therefore, there is no limit on the % of oil distillate in the liquid asphalt used. The source is in compliance with 326 IAC 8-5-2.

Compliance Requirements

Permits issued under 326 IAC 2-8 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAM, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-8-4. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance monitoring requirements applicable to this source are as follows:

1. The continuous hot mix asphalt plant has applicable compliance monitoring conditions as specified below:

(a) Visible emission notations of the aggregate dryer and batch tower baghouse stack exhaust shall be performed once per shift during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal. For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time. In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions. A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

(b) The Permittee shall record the total static pressure drop across the baghouse used in conjunction with the aggregate dryer and batch tower, at least once daily when the aggregate mixing and drying process is in operation when venting to the atmosphere. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the baghouse shall be maintained within the range of 1.0 and 6.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge Specifications, of this permit, shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

(c) An inspection shall be performed each calender quarter of all bags controlling the aggregate dryer and batch tower when venting to the atmosphere. A baghouse inspection shall be performed within three months of redirecting vents to the atmosphere and every three months thereafter. Inspections are optional when venting indoors. All defective bags shall be replaced.

Air Toxic Emissions

Indiana presently requests applicants to provide information on emissions of the 188 hazardous air pollutants (HAPs) set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Management (OAM) Part 70 Application Form GSD-08.

(a) This source will emit levels of air toxics less than those which constitute a major source according to Section 112 of the 1990 Clean Air Act Amendments. (Appendix A, pages 1 through 10)

(b) See attached calculations for detailed air toxic calculations. (Appendix A, pages 1 through 10)

Proposed Changes to the FESOP

The following changes have been made to the permit to include the new emission units in the FESOP emission limitation, to clarify the emission unit descriptions, and to add the requirements of 326 IAC 12, (40 CFR Part 60.92, Subpart I) “Standards of Performance for Hot Mix Asphalt Facilities” to the permit. The changes are as follows:

(a) The emission unit description has been revised to include the new emission units:

A.2 Emission Units and Pollution Control Summary

The stationary source consists of the following emission units and pollution control devices:

.

(a) ~~one (1) asphalt batch dryer and mixer, with a maximum capacity of 160 tons per hour, equipped with one (1) No. 4 fuel oil fired aggregate dryer burner with a maximum rated capacity of 52 million British thermal units per hour, using No. 2 fuel oil, re-refined waste oil and natural gas as back-up fuels, and one (1) cyclone/wet scrubber dust collecting system for air pollution control, exhausting at one (1) stack, identified as SV1;~~
one (1) aggregate rotary dryer, identified as unit No. 2 with a maximum capacity of processing 400 tons of aggregates per hour, equipped with one (1) No. 4 fuel oil fired aggregate dryer burner with a maximum rated capacity of 160.0 million (MM) British thermal units (Btu) per hour using No. 2 distillate fuel oil and waste oil as back-up fuels, and one (1) baghouse for air pollution control, exhausting at one (1) stack, identified as SV-1;

(b) one (1) 4' x 16' 3-deck screen;

(c) two (2) conveyors to transfer aggregates from feed bins to asphalt dryer; and

(d) production of cold-mix (stock pile mix) asphalt concrete.

(b) The list of insignificant activities has been revised to list new equipment as defined in 326 IAC 2-7-1(20), and to clarify the existing units:

A.3 Insignificant Activities

This stationary source also includes the following insignificant activities, as defined in 326 IAC 2-7-1(20):

(a) one (1) distillate No. 2 fuel oil fired liquid asphalt tank heater, **identified as unit No. 17**, with a maximum rated capacity of ~~1.4~~ **1.5** MMBtu per hour, exhausting at one (1) stack, identified as SV2;

(b) four (4) raw aggregate storage piles with a total storage capacity of 53,000 tons;

(c) one (1) reclaimed asphalt pavement storage pile with a total storage capacity of 21,600 tons;

(d) one (1) 15,000 gallon No. 4 fuel oil storage tank, identified **as No. 19, and exhausting to stack** SV3;

(e) one (1) 15,000 gallon asphalt emulsion storage tank, identified **as No. 20, and exhausting to stack** SV4;

(f) one (1) 15,000 gallon asphalt cement storage tank, identified **as No. 21, and exhausting to stack** SV5;

(g) one (1) 10,000 gallon No. 2 fuel oil storage tank, identified **as No. 22, and exhausting to stack** SV6;

(h) one (1) 2,000 gallon No. 2 fuel oil storage tank, identified **as No. 23, and exhausting to stack** SV7;

(i) one (1) 1,000 gallon diesel fuel storage tank, identified **as No. 29, and exhausting to stack** SV8;

(j) unpaved roads with public access;

(k) ~~four (4)~~ **five (5)** virgin aggregate feeder bins;

(l) one (1) reclaimed asphalt bin with conveyor;

(m) one (1) bucket elevator with 18" x 8" buckets;

(n) one (1) mixer, with a maximum continuous mix holding capacity of 8,000 pounds per hour of virgin mix; and

(o) three (3) surge silos.

(c) The emission unit description in Section D.1 has been revised to list the new emission units.

SECTION D.1 FACILITY OPERATION CONDITIONS

(a) ~~one (1) asphalt batch dryer and mixer, with a maximum capacity of 160 tons per hour, equipped with one (1) No. 4 fuel oil fired aggregate dryer burner with a maximum rated capacity of 52 million British thermal units per hour, using No. 2 fuel oil, re-refined waste oil and natural gas as back-up fuels, and one (1) cyclone/wet scrubber dust collecting system for air pollution control, exhausting at one (1) stack, identified as SV1;~~
one (1) aggregate rotary dryer, identified as unit No. 2 with a maximum capacity of processing 400 tons of aggregates per hour, equipped with one (1) No. 4 fuel oil fired aggregate dryer burner with a maximum rated capacity of 160.0 million (MM) British thermal units (Btu) per hour using No. 2 distillate fuel oil and waste oil as back-up fuels, and one (1) baghouse for air pollution control, exhausting at one (1) stack, identified as SV-1;

(b) one (1) 4' x 16' 3-deck screen; and

(c) two (2) conveyors to transfer aggregates from feed bins to asphalt dryer.

(d) The Emissions Limitations and Standards have been revised to include the new emission units in the FESOP limitation and to include 326 IAC 12, (40 CFR Part 60.92, Subpart I) "Standards of Performance for Hot Mix Asphalt Facilities", which applies to the modified asphalt plant.

D.1.1 Particulate Matter **[326 IAC 12] [40 CFR 60.90, Subpart I]**

~~Pursuant to 326 IAC 6-3 (Process Operations), the particulate matter emissions from the mixing and drying operation shall not exceed 56.1 lbs/hour.~~ **Pursuant to 326 IAC 12, (40 CFR Part 60.90, Subpart I) "Standards of Performance for Hot Mix Asphalt Facilities", the particulate matter emissions from the mixing and drying operations shall be limited to 0.04 grains per dry standard cubic foot (gr/dscf). This is equivalent to a particulate matter emission rate of 16.26 pounds per hour. Compliance with this limit makes 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 not applicable.**

D.1.2 Opacity [326 IAC 12] [40 CFR 60.90, Subpart I]

Pursuant to 326 IAC 12, (40 CFR Part 60.92, Subpart I) "Standards of Performance for Hot Mix Asphalt Facilities", the mixing and drying operations shall not discharge or cause the discharge into the atmosphere any gases which exhibit 20% opacity or greater.

D.1.3 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the facility described in this section except when otherwise specified in 40 CFR Part 60, Subpart I.

D.1.~~2~~**4** Sulfur Dioxide (SO_2) **[326 IAC 7-1.1]**

Pursuant to 326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations), sulfur dioxide emissions from the 52 million British thermal units per hour burner for the aggregate dryer shall be limited to 0.5 and 1.6 pounds per million British thermal units heat input for No. 4 (or No. 2) fuel oil and re-refined waste oil, respectively. This is equivalent to a sulfur content of less than or equal to ~~0.49~~**0.5** percent when using No. 4 (or No. 2) fuel oil and ~~1.49~~**1.5** percent when using re-refined waste oil, respectively. Pursuant to 326 IAC 7-1.1-2, this sulfur dioxide limit applies at all times including periods of startup, shutdown and malfunction.

D.1.~~3~~**5** ~~No. 4~~ Fuel Oil Usage **[326 IAC 2-8-4]**

~~The input of No. 4 fuel oil to the 52 million British thermal units per hour burner for the aggregate dryer shall be limited, to 2,413,763 U.S. gallons per twelve (12) consecutive months. The total for each month shall not exceed the difference between the annual limit minus the sum of actual usage from the previous eleven (11) months. Compliance is based on the total fuel used during the previous 12 months. For purposes of determining compliance, when backup fuels are burned, the following equivalency calculations shall be performed:~~

~~(a) each gallon of No. 2 fuel oil burned is equivalent to 0.947 gallons of No. 4 fuel oil burned;~~

~~(b) each million cubic foot (MMCF) of natural gas burned is equivalent to 5,780.6 gallons of No. 4 fuel oil burned; and~~

~~(c) each gallon of re-refined waste oil burned is equivalent to 2.42 gallons of No. 4 fuel oil burned.~~

~~The total amount of No. 4 fuel oil and No. 4 fuel oil equivalence combined shall not exceed the limit specified. During the first twelve (12) months of operation under this permit, the No. 4 fuel oil and No. 4 fuel oil equivalent combined shall be limited such that the total gallons divided by the accumulated months of operation shall not exceed 219,433 U.S. gallons per month. Therefore, the requirements of 326 IAC 2-7 will not apply.~~

Pursuant to 326 IAC 2-8-4(1), the following limit shall apply:

(a) the input of No. 2 distillate fuel oil with a maximum sulfur content of 0.5% and waste oil equivalents to the 160.0 MMBtu per hour burner for the aggregate dryer shall be limited to 2,694,930 U.S. gallons per 365 day period, rolled on a daily basis, so that SO_2 emissions are limited below 100 tons per year. During the first 365 days of operation under this permit, the input of No. 2 distillate fuel oil and No. 2 distillate fuel oil equivalents shall be limited such that the total gallons divided by the accumulated days of operation shall not exceed 7,383 U.S. gallons per day.

(b) For purposes of determining compliance, the following shall apply:

(1) every 1,000 gallons of No. 4 distillate fuel oil burned shall be equivalent to 946.7 gallons of No. 2 distillate fuel oil based on SO_2 emissions and a maximum sulfur content of 0.5 percent such that the total gallons of No. 2 distillate fuel oil and No. 2 distillate fuel oil equivalent input does not exceed the limit specified.

(2) every 1,000 gallons of waste oil burned shall be equivalent to 644.0 gallons of No. 2 distillate fuel oil based on SO_2 emissions and a maximum sulfur content of 0.75 percent such that the total gallons of No. 2 distillate fuel oil and No. 2 distillate fuel oil equivalent input does not exceed the limit specified.

Therefore, the requirements of 326 IAC 2-7 will not apply.

D.1.6 Particulate Matter 10 Microns (PM-10) [326 IAC 2-8-4]

Pursuant to 326 IAC 2-8-4, particulate matter 10 microns emissions from the aggregate mixing and drying operation shall not exceed 18.57 pounds per hour, including both filterable and condensible fractions. Compliance with this limit will satisfy 326 IAC 2-8-4. Therefore, the Part 70 rules (326 IAC 2-7) do not apply.

D.1.~~4~~**7** Preventive Maintenance Plan [326 IAC 2-8-4(9)]

A Preventive Maintenance Plan, in accordance with Condition B.13 of this permit, is required for each facility.

Testing Requirements [326 IAC 2-8-4(3)]

D.1.5**8** Particulate Matter

During the period between 30 months and 36 months after issuance of this permit, the Permittee shall perform PM and PM10 testing utilizing ~~methods per~~ **Methods 5 or 17 (**40 CFR Part 60 Appendix A**) for PM and Methods 201 or 201A and 202 (40 CFR 51, Appendix M) for PM-10, or other methods** ~~, Method 5, 17, 40 CFR Part 51 Appendix M, Method 201, 201a, 202,~~ as approved by the Commissioner. This test shall be repeated at least once every five years from the date of this valid compliance demonstration. PM10 includes filterable and condensible PM10. **In addition to these requirements, IDEM may require compliance testing when necessary to determine if the facility is in compliance.**

D.1.6**9** Sulfur Dioxide Emissions and Sulfur Content

~~The Permittee shall test for:~~

~~(a) Sulfur content of oil burned as fuel by the 60 million British thermal units per hour aggregate dryer burner, using 40 CFR Part 60, Appendix A, Method 19 for each load of oil delivered; or~~

~~(b) Sulfur dioxide emissions from the 60 million British thermal units per hour aggregate dryer burner, using 40 CFR Part 60, Appendix A, Method 6 each time a test to comply with Condition D.1.5 is performed.~~

~~Sulfur content tests may be made by the oil supplier.~~

Compliance shall be determined utilizing one of the following options.

(a) Pursuant to 326 IAC 3-7-4, the Permittee shall demonstrate that the waste oil sulfur content does not exceed 0.75% by weight and the No. 2 and No. 4 distillate fuel oil sulfur content does not exceed 0.5% by weight by:

(1) Providing vendor analysis of fuel delivered, if accompanied by a certification;

(2) Analyzing the oil sample to determine the sulfur content of the oil via the procedures in 40 CFR 60, Appendix A, Method 19.

(A) Oil samples may be collected from the fuel tank immediately after the fuel tank is filled and before any oil is combusted; and

(B) If a partially empty fuel tank is refilled, a new sample and analysis would be required upon filling; or

(b) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the 160.0 MMBtu per hour burner for the aggregate dryer, using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6.

A determination of noncompliance pursuant to either of the methods specified in (a) or (b) above shall not be refuted by evidence of compliance pursuant to the other method.

D.1.10 Particulate Matter (PM)

The baghouse for PM control shall be in operation at all times when the aggregate mixing and drying process is in operation.

Compliance Monitoring Requirements [326 IAC 2-8-5(a)(1)]

~~D.1.7 Pressure and Flow Rate Readings~~

~~The Permittee shall take pressure and scrubbing liquid (water) flow rate readings across the wet scrubber controlling the drying operation, at least once per working shift when the mixing and drying process is in operation. Unless operated under conditions for which the Preventive Maintenance Plan specifies otherwise, the pressure drop across the wet scrubber shall be maintained within the range of 2.0 and 4.0 inches of water and the flow rate for scrubbing liquid shall be maintained within the range of 90 to 100 gallons per minute or a range and flow rate established during the latest stack test. The Preventive Maintenance Plan for this unit shall contain troubleshooting contingency and corrective actions for when the pressure reading or flow rate is outside of this range for any one reading.~~

~~The instrument used for determining the pressure shall comply with Condition C.11 - Pressure Gauge Specifications, be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.~~

D.1.8**11** ~~Daily~~ Visible Emission Notations

~~Daily visible emission notations of the conveyers, material transfers, aggregate storage piles, unpaved roads, and the mixing and drying operation stack exhaust shall be performed during normal daylight operations. A trained employee will record whether emissions are normal or abnormal. For processed operated continuously "normal" means those conditions prevailing, or expected to prevail, 80 percent of the time the process is in operation, not counting startup or shut down time. In the case of batch or discontinuous operations, readings shall be taken during that part of the operation specified condition prescribing visible emissions. A trained employee is an employee who has worked at the plant at least one month and has been trained in the appearance and characteristics of normal visible emissions for that specific process. The Preventive Maintenance Plan for this unit shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed.~~

(a) Visible emission notations of the aggregate dryer and batch tower baghouse stack exhaust shall be performed once per shift during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

~~D.1.9 Wet Scrubber Failure Detection~~

~~In the event that the wet scrubber is observed to be operating with a static pressure drop or a liquid flow rate below the low end range for more than two (2) hours during production:~~

~~(a) Troubleshooting shall be implemented and corrective action shall be taken within eight (8) hours of discovery.~~

~~(b) If the corrective action does not correct the problem, then additional corrective actions shall be devised within eight (8) hours of discovery and shall include a timetable for completion.~~

~~(c) For a complete failure of the water supply system to the wet scrubber, the asphalt mixing and drying operations shall be shut down immediately until the supply of water has been restored.~~

~~D.1.10 Preventive Inspections~~

~~The following inspections shall be performed when the dryer is operating in accordance with the Preventive Maintenance Plan prepared pursuant to Condition B.13:~~

~~Daily:~~

~~(a) Inlet gas temperature;~~
~~(b) Outlet gas temperature;~~
~~(c) Liquor recirculation rate;~~
~~(d) Liquor PH;~~
~~(e) Water makeup rate;~~
~~(f) Liquid line blockage; and~~
~~(g) Nozzle blockage and pressure.~~

~~Weekly:~~

~~(a) Liquor solids' concentration; and~~
~~(b) Liquor total dissolved solids.~~

~~Monthly:~~

~~(a) Instrument air; and~~
~~(b) Valve operation.~~

D.1.12 Parametric Monitoring

The Permittee shall record the total static pressure drop across the baghouse used in conjunction with the aggregate dryer and batch tower, at least once daily when the aggregate mixing and drying process is in operation when venting to the atmosphere. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the baghouse shall be maintained within the range of 1.0 and 6.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge Specifications, of this permit, shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

D.1.13 Baghouse Inspections

An inspection shall be performed each calender quarter of all bags controlling the aggregate dryer and batch tower when venting to the atmosphere. A baghouse inspection shall be performed within three months of redirecting vents to the atmosphere and every three months thereafter. Inspections are optional when venting indoors. All defective bags shall be replaced.

~~D.1.11 Fuel Oil Sampling and Analysis~~

~~Oil samples shall be collected from the fuel tank immediately after the fuel tank is filled and before any oil is combusted. The Permittee shall analyze the oil sample to determine the sulfur content of the oil in accordance with 326 IAC 3-3-4. If a partially empty fuel tank is refilled, a new sample and analysis is required upon filling. Vendor analysis of each load delivered is acceptable, in lieu of the above, if accompanied by a certification.~~

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)]

~~D.1.12 Operational Parameters~~

~~The Permittee shall maintain a daily record for the cyclone/wet scrubber system controlling particulate matter emissions from asphalt mixing and drying operations of the following values:~~

~~(a) Inlet and outlet differential static pressure;~~

~~(b) Scrubbing liquid flow rate;~~

~~(c) Visible observations;~~
~~(d) Checklist with dates and initials for each preventive action performed; and~~

~~(e) Records of corrective actions.~~

D.1.14 Record Keeping Requirements

(a) To document compliance with Conditions D.1.4 and D.1.5, the Permittee shall maintain records in accordance with (1) through (6) below.

(1) Calendar dates covered in the compliance determination period;

(2) Actual fuel oil usage since last compliance determination period and equivalent sulfur dioxide emissions;

(3) A certification, signed by the owner or operator, that the records of the fuel supplier certifications represent all of the fuel combusted during the period; and

If the fuel supplier certification is used to demonstrate compliance the following, as a minimum, shall be maintained:

(4) Fuel supplier certifications.

(5) The name of the fuel supplier; and

(6) A statement from the fuel supplier that certifies the sulfur content of the fuel oil.

The Permittee shall retain records of all recording/monitoring data and support information for a period of five (5) years, or longer if specified elsewhere in this permit, from the date of the monitoring sample, measurement, or report. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit.

(b) To document compliance with Condition D.1.11, the Permittee shall maintain records of visible emission notations of the aggregate dryer and batch tower baghouse stack exhaust once per shift.

(c) To document compliance with Condition D.1.12, the Permittee shall maintain the following:

(1) Daily records of the following operational parameters during normal operation when venting to the atmosphere:

(A) Inlet and outlet differential static pressure.

(2) Documentation of all response steps implemented, per event .

(3) Operation and preventive maintenance logs, including work purchases orders, shall be maintained.

(4) Quality Assurance/Quality Control (QA/QC) procedures.

(5) Operator standard operating procedures (SOP).

(6) Manufacturer's specifications or its equivalent.

(7) Equipment "troubleshooting" contingency plan.

(d) To document compliance with Conditions D.1.12 and D.1.13, the Permittee shall maintain records of the results of the inspections required under Conditions D.1.12 and D.1.13 and the dates the vents are redirected.

(e) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

~~D.1.13 Oil Usage~~

~~(a) Complete and sufficient records shall be kept to establish compliance with the fuel oil usage limits and sulfur dioxide emission limit established in this permit and contain a minimum of the following:~~

~~(1) Calendar dates covered in the compliance determination period;~~

~~(2) Actual No. 4 fuel oil usage and No. 4 fuel oil equivalence during the period and calculated sulfur dioxide content;~~

~~(3) A certification, signed by the owner or operator, that the records of the fuel supplier certifications represent all of the fuel combusted during the period; and~~

~~(4) Fuel supplier certifications.~~

~~(b) The supplier certification shall contain, as a minimum, the following:~~

~~(1) The name of the oil supplier; and~~

~~(2) A statement from the oil supplier that certifies the sulfur content and heat content of the fuel oil.~~

D.1.15 Used Oil Requirements

The waste oil burned in the aggregate dryer burner shall comply with the used oil requirements specified in 329 IAC 13 (Used Oil Management). Pursuant to 329 IAC 13-3-2 (Used Oil Specifications), used oil burned for energy recovery that is classified as off-specification used oil fuel shall comply with the provisions of 329 IAC 13-8 (Used Oil Burners Who Burn Off-specification Used Oil For Energy Recovery), including:

(a) Receipt of an EPA identification number as outlined in 329 IAC 13-8-3 (Notification),

(b) Compliance with the used oil storage requirements specified in 329 IAC 13-8-5 (Used Oil Storage), and

(c) Maintaining records pursuant to 329 IAC 13-8-6 (Tracking).

The burning of mixtures of used oil and hazardous waste that is regulated under 329 IAC 3.1 is prohibited at this source.

~~D.1.14 Re-refined Waste Oil Usage~~

~~Pursuant to 329 IAC 3.1-11 (Standards for the management of specific hazardous wastes and specific types of hazardous waste management facilities), the re-refined re-refined waste oil burned in the aggregate dryer burner shall meet the used oil specifications in 40 CFR 266.40 (e). Therefore, 40 CFR 266 (Standards for the management of specific hazardous wastes and specific types of hazardous waste management facilities), Subpart E (used oil burned for energy recovery), does not apply.~~

D.1.~~15~~**16** Quarterly Reporting

A quarterly summary to document compliance with operation conditions numbers D.1.~~2~~**4** and D.1.~~3~~**5** shall be submitted, to the address listed in condition C.16 - General Reporting Requirements, **of this permit,** using the enclosed forms **located at the end of this permit,** or their equivalent, within thirty (30) days after the end of the quarter being reported.

(e) The cold mix usage limitation in Condition D.2.2 has been replaced with a diluent usage limitation. The changes to the permit are as follows:

D.2.2 ~~Cold-Mix (stock pile mix) Asphalt Concrete Usage~~ **Cold-Mix (Stockpile Mix) VOC Usage [326 IAC 2-8-4]**

~~The amount of cold-mix (stock pile mix) asphalt concrete shall be limited to 24,099 tons per twelve (12) month period, rolled on a monthly basis. This is equivalent to 1,807 tons of liquid binder used per year in the production of cold mix cutback asphalt based on 0.5 percent diluent present in the asphalt. Therefore, the requirements of 326 IAC 2-7 will not apply.~~

The VOC usage in the production of cold mix (stockpile mix) asphalt shall be limited to 81.80 tons per 365 consecutive day period, rolled on a daily basis. The total for each day shall not exceed the difference between the annual usage limit minus the sum of actual usage from the previous 364 days. This is equivalent to 77.71 tons of diluent used per 365 day period in the production of cold mix (stockpile mix) asphalt based on 95% volatilization. During the first 365 days of operation under this permit, the usage of diluent shall be limited such that the total usage divided by the accumulated days of operation shall not exceed 448 pounds per day. Therefore, the requirements of 326 IAC 2-7 will not apply.

(f) The record keeping requirements for Section D.2 have been revised to require reporting of diluent usage. The changes to Condition D.2.3 are as follows:

D.2.3 ~~Operational Parameters~~ **Record Keeping Requirements**

~~The Permittee shall maintain records at the facility of the amount of cold-mix asphalt concrete produced each month. The records shall be complete and sufficient to establish compliance with the VOC usage limit established in this permit. The records shall contain a minimum of the following:~~

~~(a) cold-mix (emulsified) asphalt produced in current month;~~

~~(b) cold-mix (emulsified) asphalt produced last twelve (12) months;~~

~~(c) type of emulsion used; and~~

~~(d) percent fuel oil in emulsion.~~

(a) To document compliance with Condition D.2.2, the Permittee shall maintain

records in accordance with (1) through (4) below. Records maintained for (1) through (4) shall be taken monthly and shall be complete and sufficient to establish compliance with the VOC usage limits and/or the VOC emission limits established in Condition D.2.2.

(1) diluent used in production of cold mix asphalt per day;

(2) amount of diluent used last 365 days;

(3) type of liquid binder used; and

(4) percent diluent (oil distillate) in liquid binder.

(b) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

Limits: ~~sulfur content of No.4 fuel oil and No.2 fuel oil not to exceed 0.49 percent, and sulfur content of re-refined waste oil not to exceed 1.49 percent; 2,413,763 gallons of No. 4 fuel oil and No. 4 fuel oil equivalent combined per last 12-month period. For purposes of determining compliance: (a) each gallon of No.2 fuel oil burned is equivalent to 0.947 gallons of No. 4 fuel oil burned; (b) each million cubic feet (MMCF) of natural gas burned is equivalent to 5780.6 gallons of No. 4 fuel oil burned; and (c) each gallon of re-refined waste oil burned is equivalent to 2.42 gallons of No. 4 fuel oil burned.~~

~~The total amount of No. 4 fuel oil and No. 4 fuel oil equivalence combined shall not exceed 201,146 gallons per month for the first 12 months of operation under this permit.~~

(a) the input of No. 2 distillate fuel oil with a maximum sulfur content of 0.5% and waste oil equivalents to the 160.0 MMBtu per hour burner for the aggregate dryer shall be limited to 2,694,930 U.S. gallons per 365 day period, rolled on a daily basis, so that SO_2 emissions are limited below 100 tons per year. During the first 365 days of operation under this permit, the input of No. 2 distillate fuel oil and No. 2 distillate fuel oil equivalents shall be limited such that the total gallons divided by the accumulated days of operation shall not exceed 7,383 U.S. gallons per day.

(b) For purposes of determining compliance, the following shall apply:

(3) every 1,000 gallons of No. 4 distillate fuel oil burned shall be equivalent to 946.7 gallons of No. 2 distillate fuel oil based on SO_2 emissions and a maximum sulfur content of 0.5 percent such that the total gallons of No. 2 distillate fuel oil and No. 2 distillate fuel oil equivalent input does not exceed the limit specified.

(4) every 1,000 gallons of waste oil burned shall be equivalent to 644.0 gallons of No. 2 distillate fuel oil based on SO_2 emissions and a maximum sulfur content of 0.75 percent such that the total gallons of No. 2 distillate fuel oil and No. 2 distillate fuel oil equivalent input does not exceed the limit specified.

(g) The FESOP Quarterly Report has been revised to state the new cold-mix (stock pile mix) asphalt limitation, and to replace the monthly cold mix report form with a daily diluent usage form . The changes are as follows:

Limit: ~~24,099 tons of cold-mix (stock pile mix) asphalt per last 12-month period.~~**The VOC usage in the production of cold mix (stockpile mix) asphalt shall be limited to 81.80 tons per 365 consecutive day period, rolled on a daily basis. The total for each day shall not exceed the difference between the annual usage limit minus the sum of actual usage from the previous 364 days. This is equivalent to 77.71 tons of diluent used per 365 day period in the production of cold mix (stockpile mix) asphalt based on 95% volatilization. During the first 365 days of operation under this permit, the usage of diluent shall be limited such that the total usage divided by the accumulated days of operation shall not exceed 448 pounds per day.**

Month: _____ Year: _____

Day	Diluent Usage This Day (tons)	Diluent Usage Last 364 days (tons)	365 Day Total Diluent Usage (tons)	Day	Diluent Usage This Day (tons)	Diluent Usage Last 364 days (tons)	365 Day Total Diluent Usage (tons)
1				17			
2				18			
3				19			
4				20			
5				21			
6				22			
7				23			
8				24			
9				25			
10				26			
11				27			
12				28			
13				29			
14				30			
15				31			
16							

Conclusion

The operation of this hot continuous mix asphalt concrete source shall be subject to the conditions of the attached proposed **Significant Permit Revision No.: SPR 085-11941-03111**.

Company Name: **Phend & Brown, Inc.**
Plant Location: **Etna Green, IN**
County: **Kosciusko**
Date Received: **February 29, 2000**
Permit Reviewer: **Phillip Ritz/EVP**

**** aggregate dryer burner****

The following calculations determine the amount of emissions created by the combustion of #4 distillate fuel oil
@ 0.50 % sulfur, from the aggregate dryer burner, based on 8,760 hours of use and
US EPA's AP-42, 5th Edition, Section 1.3 - Fuel Oil Combustion, Tables 1.3-1, 1.3-3, and 1.3-7.

Criteria Pollutant: 160 MMBtu/hr * 8,760 hr/yr / 140,000 Btu/gal * 2,000 lb/ton * Ef (lb/1,000 gal) = (ton/yr)

P M:	7.0 lb/1000 gal =	**35.04**	**ton/yr**
P M-10:	1.0 lb/1000 gal =	**5.01**	**ton/yr**
S O 2:	75.0 lb/1000 gal =	**375.43**	**ton/yr**
N O x:	47.0 lb/1000 gal =	**235.27**	**ton/yr**
V O C:	0.20 lb/1000 gal =	**1.00**	**ton/yr**
C O:	5.0 lb/1000 gal =	**25.03**	**ton/yr**

The following calculations determine the amount of emissions created by the combustion of #2 distillate fuel oil
@ 0.50 % sulfur, from the aggregate dryer burner, based on 8,760 hours of use and
US EPA's AP-42, 5th Edition, Section 1.3 - Fuel Oil Combustion, Tables 1.3-1, 1.3-3, and 1.3-7.

Criteria Pollutant: 160 MMBtu/hr * 8,760 hr/yr / 140,000 Btu/gal * 2,000 lb/ton * Ef (lb/1,000 gal) = (ton/yr)

P M:	2.0 lb/1000 gal =	**10.01**	**ton/yr**
P M-10:	1.1 lb/1000 gal =	**5.41**	**ton/yr**
S O 2:	71.0 lb/1000 gal =	**355.41**	**ton/yr**
N O x:	20.0 lb/1000 gal =	**100.11**	**ton/yr**
V O C:	0.20 lb/1000 gal =	**1.00**	**ton/yr**
C O:	5.0 lb/1000 gal =	**25.03**	**ton/yr**

The following calculations determine the amount of emissions created by the combustion of waste oil
@ 0.75 % sulfur, 1.020 % ash, based on 8,760 hours of use and
US EPA's AP-42, 5th Edition, Section 1.11 - Waste Oil Combustion, Tables 1.11-1, 1.11-2, and 1.11-3.

Criteria Pollutant: 160 MMBtu/hr * 8760 hr/yr / 140,000 Btu/gal * 2000 lb/ton * Ef (lb/1000 gal) = (ton/yr)

P M:	65.3 lb/1000 gal =	**326.77**	**ton/yr**
P M-10:	52.0 lb/1000 gal =	**260.40**	**ton/yr**
S O 2:	110.3 lb/1000 gal =	**551.88**	**ton/yr**
N O x:	19.0 lb/1000 gal =	**95.11**	**ton/yr**
V O C:	1.0 lb/1000 gal =	**5.01**	**ton/yr**
C O:	5.0 lb/1000 gal =	**25.03**	**ton/yr**

The maximum potential emissions from the aggregate dryer burner due to fuel combustion are the following:

Criteria Pollutant:		**Worst Case Fuel**
P M:	**326.77 ton/yr**	Waste Oil
P M-10:	**260.40 ton/yr**	Waste Oil
S O 2:	**551.88 ton/yr**	Waste Oil
N O x:	**235.27 ton/yr**	No. 4 Distillate Oil
V O C:	**5.01 ton/yr**	Waste Oil
C O:	**25.03 ton/yr**	No. 2 Distillate Oil

****insignificant combustion sources****

Insignificant combustion units at this source include one (1) distillate No. 2 fuel oil fired liquid asphalt tank heater, with a maximum capacity of 1.5 MMBtu/hr.

The following calculations determine the amount of emissions created by the combustion of #2 distillate fuel oil @ 0.50 % sulfur, based on 8,760 hours of use and US EPA's AP-42, 5th Edition, Section 1.3 - Fuel Oil Combustion, Tables 1.3-1, 1.3-3, and 1.3-7.

Criteria Pollutant: 1.5 MMBtu/hr * 8,760 hr/yr / 140,000 Btu/gal * 2,000 lb/ton * Ef (lb/1,000 gal) = (ton/yr)

P M:	2.0	lb/1000 gal =	**0.09 ton/yr**
P M-10:	1.1	lb/1000 gal =	**0.05 ton/yr**
S O 2:	71.0	lb/1000 gal =	**3.33 ton/yr**
N O x:	20.0	lb/1000 gal =	**0.94 ton/yr**
V O C:	0.34	lb/1000 gal =	**0.02 ton/yr**
C O:	5.0	lb/1000 gal =	**0.23 ton/yr**

The maximum potential emissions of the insignificant combustion sources are the following:

Criteria Pollutant:

P M:	**0.09 ton/yr**
P M-10:	**0.05 ton/yr**
S O 2:	**3.33 ton/yr**
N O x:	**0.94 ton/yr**
V O C:	**0.02 ton/yr**
C O:	**0.23 ton/yr**

*** * aggregate drying: continuous-mix plant * ***

The following calculations determine the amount of worst case emissions created by aggregate drying before controls, based on 8,760 hours of use and USEPA's AP-42, 5th Edition, Section 11.1 - Hot Mix Asphalt Plants, Tables 11.1-2 and 11.1-9 for a continuous mix dryer which has the capability of combusting either fuel oil :

Pollutant: Ef lb/ton x 400 ton/hr x 8,760 hr/yr / 2,000 lb/ton

Criteria Pollutant:

P M:	4.9	lb/ton =	**8,584.80 ton/yr**
P M-10:	1.1	lb/ton =	**1,927.20 ton/yr**
VOC:	0.011647	lb/ton =	**20.41 ton/yr**

The VOC emission factor for aggregate drying includes HAP emissions which are assumed to be VOC.

*** * conveying / handling * ***

The following calculations determine the amount of emissions created by material handling, based on 8.760 hours of use and AP-42, Section 13.2.4, Equation 1. The emission factor for calculating PM emissions is calculated as follows:

PM-10 Emissions:

E = k*(0.0032)*(((U/5)^1.3)/((M/2)^1.4))

=	1.12E-03	lb PM-10/ton
	2.37E-03	lb PM/ton
where k =	0.35	(particle size multiplier for <10um)
	0.74	(particle size multiplier for <30um)
U =	12	mph mean wind speed
M =	4.5	material moisture content (%)

400 ton/hr * 8,760 hrs/yr * Ef (lb/ton of material) = (ton/yr)
2,000 lb/ton

Total PM 10 Emissions: 1.97 tons/yr
Total PM Emissions: 4.16 tons/yr

*** * unpaved roads * ***

The following calculations determine the amount of emissions created by vehicle traffic on unpaved roads, based on 8,760 hours of use and USEPA's AP-42, 5th Edition, Section 13.2.2.2.

I. Semi Dump Truck

2.89	trip/hr	x
0.2	mile/trip	x
2	(round trip)	x
8760	hr/yr =	10126.56 miles per year

Ef =	k*[(s/12)^0.8]*[(W/3)^b]/[(M/0.2)^c]*[(365-p)/365]*(S/15)	
=	1.36	lb PM-10/mile
=	6.55	lb PM/mile
where k =	2.6	(particle size multiplier for PM-10) (k=10 for PM-30 or TSP)
s =	4.8	mean % silt content of unpaved roads
b =	0.4	Constant for PM-10 (b = 0.5 for PM-30 or TSP)
c =	0.3	Constant for PM-10 (c = 0.4 for PM-30 or TSP)
W =	29	tons average vehicle weight
M =	0.2	surface material moisture content, % (default is 0.2 for dry conditions)
S =	10.0	mph speed limit
p =	125.0	number of days with at least 0.01 in. of precipitation per year

PM-10: 1.36 lb/mi x 10126.56 mi/yr = **6.87 tons/yr**
2000 lb/ton

PM: 6.55 lb/mi x 10126.56 mi/yr = **33.15 tons/yr**
2000 lb/ton

II. Front End Loader - Processed RAP

26.67	trip/hr	x
0.078	mile/trip	x
2	(round trip)	x
8760	hr/yr =	36446.1552 miles per year

Ef =	k*[(s/12)^0.8]*[(W/3)^b]/[(M/0.2)^c]*[(365-p)/365]*(S/15)	
=	0.99	lb PM-10/mile
=	4.67	lb PM/mile
where k =	2.6	(particle size multiplier for PM-10) (k=10 for PM-30 or TSP)
s =	4.8	mean % silt content of unpaved roads
b =	0.4	Constant for PM-10 (b = 0.5 for PM-30 or TSP)
c =	0.3	Constant for PM-10 (c = 0.4 for PM-30 or TSP)
W =	23	tons average vehicle weight
M =	0.2	surface material moisture content, % (default is 0.2 for dry conditions)
S =	8.0	mph speed limit
p =	125.0	number of days with at least 0.01 in. of precipitation per year

PM-10: 0.99 lb/mi x 36446.1552 mi/yr = **18.03 tons/yr**
2000 lb/ton

PM: 4.67 lb/mi x 36446.1552 mi/yr = **85.01 tons/yr**
2000 lb/ton

III. Triaxle Dump Truck - Stone

3.09	trip/hr (in)	x
0.2	mile/trip (in)	+
7.62	trip/hr (out)	x
0.057	mile/trip (out)	x
8,760	hr/yr =	9218.4984 miles per year

Ef =	k*[(s/12)^0.8]*[(W/3)^b]/[(M/0.2)^c]*[(365-p)/365]*(S/15)	
=	1.28	lb PM-10/mile
=	6.08	lb PM/mile
where k =	2.6	(particle size multiplier for PM-10) (k=10 for PM-30 or TSP)
s =	4.8	mean % silt content of unpaved roads
b =	0.4	Constant for PM-10 (b = 0.5 for PM-30 or TSP)
c =	0.3	Constant for PM-10 (c = 0.4 for PM-30 or TSP)
W =	25	tons average vehicle weight
M =	0.2	surface material moisture content, % (default is 0.2 for dry conditions)
S =	10.0	mph speed limit
p =	125.0	number of days with at least 0.01 in. of precipitation per year

PM-10: 1.28 lb/mi x 9218.4984 mi/yr = **5.89 tons/yr**
2000 lb/ton

PM: 6.08 lb/mi x 9218.4984 mi/yr = **28.02 tons/yr**
2000 lb/ton

Total PM Emissions From Unpaved Roads = 146.19 tons/yr

Total PM-10 Emissions From Unpaved Roads = 30.79 tons/yr

*** * storage * ***

The following calculations determine the amount of emissions created by wind erosion of storage stockpiles, based on 8,760 hours of use and USEPA's AP-42 (Pre 1983 Edition), Section 11.2.3.

Material	Silt Content (wt %)	Pile Size (acres)	Storage Capacity (tons)	PM Emissions tons/yr	PM-10 Emisions tons/yr
Sand	0.5	0.321	7,000	0.03	0.01
Gravel	1.4	0.781	17,000	0.23	0.08
Limestone	1.2	0.826	18,000	0.21	0.07
B.F. Slag	1.0	0.505	11,000	0.11	0.04
RAP	1.0	1.240	21,600	0.26	0.09
Total				**0.84**	**0.29**

Sample Calculation:

Ef = 1.7*(s/1.5)*(365-p)/235*(f/15)
= 1.39 lb/acre/day
where s = 1.2 % silt
p = 125 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Ep (storage) = Ef * sc * (20 cuft/ton) * (365 day/yr) / (2.000 lb/ton)*(43,560 sqft/acre)*(12 ft)
where sc = 11,700 tons storage capacity

PM = 0.11 tons/yr P M-10: 35% of PM = 0.04 tons/yr

*** *cold mix VOC storage emissions * ***

The following calculations determine the amount of VOC emissions created by cold mix asphalt storage for medium cure mix with 7.5% diluent in cutback, based on 8,760 hours of use and USEPA's AP-42, 5th Edition, Section 4.5, Table 4.5-1.

VOC Emission Factor = 0.343 weight percent flash-off of cold mix
Potential Throughput (tons/yr) = 3,504,000 tons/yr stockpile mix

Potential VOC Emissions (tons/yr) = Potential Throughput (tons/yr) * wt percent flash-off
Potential VOC Emissions = 12,018.72 tons/yr

* Weight % flash-off of cold mix is determined using the equation in US EPA's AP-42, 5th Edition, Section 4.5, based on a typical diluent density of 5.84 lb/gal (0.7 kg/L), an asphalt density of 9.18 lb/gal (1.1 kg/L), and an evaporative VOC percentage of diluent of 7%.

*** * summary of source emissions before controls * ***

Criteria Pollutants:

P M:	**9,062.86 ton/yr**	
P M-10:	**2,220.71 ton/yr**	
S O 2:	**555.21 ton/yr**	
N O x:	**236.21 ton/yr**	
V O C:	**12,044.15 ton/yr**	(VOCs include HAPs from aggregate drying operation)
C O:	**25.26 ton/yr**	

*** * source emissions after controls * ***

In order to qualify for the FESOP program, this facility must limit PM-10, SO2, and VOC emissions to 99.0 tons per year. Consequently, SO2 emissions from the aggregate dryer must be limited to 89.95 tons per year (99.0 ton/yr - 9.05 ton/yr from the other combustion sources).

* Emissions of PM and PM-10 from aggregate drying operations are controlled with a 99.900 % control efficiency. Control efficiency represents the combined overall control efficiency of the cyclone and baghouse.

The following calculations determine the amount of emissions created by No.4 distillate fuel oil @ 0.50 % sulfur based on a fuel usage limitation of 2,551,200 gal/yr:

No. 2 Distillate Oil: $\frac{2{,}551{,}200 \text{ gal/yr}}{2{,}000 \text{ lb/ton}}$ * Ef (lb/1,000 gal) = (ton/yr)

P M:	7.0 lb/1000 gal =	**8.93E-03**	**ton/yr ***
P M-10:	1.0 lb/1000 gal =	**1.28E-03**	**ton/yr ***
S O 2:	0.0 lb/1000 gal =	**0.00**	**ton/yr**
N O x:	47.0 lb/1000 gal =	**59.95**	**ton/yr**
V O C:	0.20 lb/1000 gal =	**0.26**	**ton/yr**
C O:	5.0 lb/1000 gal =	**6.38**	**ton/yr**

The following calculations determine the amount of emissions created by No.2 distillate fuel oil @ 0.50 % sulfur based on a fuel usage limitation of 2,694,930 gal/yr:

No. 2 Distillate Oil: $\frac{2{,}694{,}930 \text{ gal/yr}}{2{,}000 \text{ lb/ton}}$ * Ef (lb/1,000 gal) = (ton/yr)

P M:	2.0 lb/1000 gal =	**2.69E-03**	**ton/yr ***
P M-10:	1.1 lb/1000 gal =	**1.46E-03**	**ton/yr ***
S O 2:	71.0 lb/1000 gal =	**95.67**	**ton/yr**
N O x:	20.0 lb/1000 gal =	**26.95**	**ton/yr**
V O C:	0.20 lb/1000 gal =	**0.27**	**ton/yr**
C O:	5.0 lb/1000 gal =	**6.74**	**ton/yr**

The following calculations determine the amount of emissions created by waste oil @ 0.75 % sulfur based on a fuel usage limitation of 1,735,510 gal/yr:

Waste Oil: $\frac{1{,}735{,}510 \text{ gal/yr}}{2000 \text{ lb/ton}}$ * Ef (lb/1000 gal) = (ton/yr)

P M:	65.3 lb/1000 gal =	**0.06**	**ton/yr ***
P M-10:	52.0 lb/1000 gal =	**0.05**	**ton/yr ***
S O 2:	110.3 lb/1000 gal =	**95.67**	**ton/yr**
N O x:	19.0 lb/1000 gal =	**16.49**	**ton/yr**
V O C:	1.0 lb/1000 gal =	**0.87**	**ton/yr**
C O:	5.0 lb/1000 gal =	**4.34**	**ton/yr**

Criteria Pollutant:		**Worst Case Fuel**
P M:	**0.06 ton/yr ***	Waste Oil
P M-10:	**0.05 ton/yr ***	Waste Oil
S O 2:	**95.67 ton/yr**	Distillate/Waste Oil
N O x:	**59.95 ton/yr**	Distillate/Waste Oil
V O C:	**0.87 ton/yr**	Waste Oil
C O:	**6.74 ton/yr**	Distillate

Primary Fuel Usage Limitations

Fuel Oil: #4 re-refined fuel oil

95.67 tons SO2/year limited * 10011.43 Kgals / year potential = 2551.20 Kgals year limited
375.43 tons SO2/year potential

Secondary Fuel Usage Limitations

Fuel Oil: #2 distillate fuel oil

95.67 tons SO2/year limited * 10011.43 Kgals / year potential = 2694.93 Kgals year limited
355.41 tons SO2/year potential

Secondary Fuel Usage Limitations

Fuel Oil: waste oil

95.67 tons SO2/year limited * 10011.43 Kgals / year potential = 1735.51 Kgals year limited
551.88 tons SO2/year potential

Primary fuel equivalence limit for #4 distillate fuel oil based on SO2 emissions from #2 re-refined fuel oil

355.41 #2 F.O. potential emissions (ton/yr) / 375.43 #4 F.O. potential emissions (ton/yr)
10011.43 #2 F.O. potential usage (kgal/yr) 10011.43 #4 F.O. potential usage (kgal/yr)

= 0.9467 Kgal #2 F.O. burned / Kgal #4 F.O. burned

Primary fuel equivalence limit for waste oil based on SO2 emissions from #2 re-refined fuel oil

355.41 #2 F.O. potential emissions (ton/yr) / 551.88 W.O. potential emissions (ton/yr)
10011.43 #2 F.O. potential usage (kgal/yr) 10011.43 W.O. potential usage (kgal/yr)

= 0.6440 Kgal #4 F.O. burned / Kgal W.O. burned

*** * source emissions after controls * ***

misc. combustion:		nonfugitive			
P M:	0.09 ton/yr x	100.00%	emitted after controls =	**0.09 ton/yr**	
P M-10:	0.05 ton/yr x	100.00%	emitted after controls =	**0.05 ton/yr**	
aggregate drying:		nonfugitive			
P M:	8,584.80 ton/yr x	0.10%	emitted after controls =	**8.58 ton/yr**	
P M-10:	1,927.20 ton/yr x	0.10%	emitted after controls =	**1.93 ton/yr**	
VOC:	20.41 ton/yr x	100.00%	emitted after controls =	**20.41 ton/yr**	
conveying/handling:		fugitive			
P M:	4.16 ton/yr x	25%	emitted after controls =	**1.04 ton/yr**	
P M-10:	1.97 ton/yr x	50%	emitted after controls =	**0.98 ton/yr**	
unpaved roads:		fugitive			
P M:	146.19 ton/yr x	25%	emitted after controls =	**36.55 ton/yr**	
P M-10:	30.79 ton/yr x	50%	emitted after controls =	**15.40 ton/yr**	
storage piles:		fugitive			
P M:	0.84 ton/yr x	50%	emitted after controls =	**0.42 ton/yr**	
P M-10:	0.29 ton/yr x	100%	emitted after controls =	**0.29 ton/yr**	
cold mix VOC storage:		fugitive			
VOC:	12,018.72 ton/yr	81.80	Limited Diluent Throughput (tons/yr) =	**77.71 ton/yr**	

*** * summary of source emissions after controls * ***

Criteria Pollutant:	**Non-Fugitive**	**Fugitive**	**Total**
PM:	**8.74 ton/yr**	**38.01 ton/yr**	**46.74 ton/yr**
PM-10:	**2.02 ton/yr**	**16.68 ton/yr**	**18.70 ton/yr**
S O 2:	**99.00 ton/yr**	**0.00 ton/yr**	**99.00 ton/yr**
N O x:	**60.89 ton/yr**	**0.00 ton/yr**	**60.89 ton/yr**
V O C:	**21.29 ton/yr**	**77.71 ton/yr**	**99.00 ton/yr**
C O:	**6.97 ton/yr**	**0.00 ton/yr**	**6.97 ton/yr**

Hazardous Air Pollutants (HAPs)

**** aggregate dryer burner****

The following calculations determine the amount of HAP emissions created by the combustion of distillate fuel oil before & after controls @ 0.50 % sulfur, from the aggregate dryer burner, based on 8,760 hours of use and US EPA's AP-42, 5th Edition, Section 1.3 - Fuel Oil Combustion, Table 1.3-11.

Hazardous Air Pollutants (HAPs): 160 MMBtu/hr * 8760 hr/yr / 2,000 lb/ton * Ef (lb/10^12 Btu) = (ton/yr)

			Potential To Emit	Limited Emissions
Arsenic:	4	lb/10^12 Btu =	2.80E-03 ton/yr	2.80E-06 ton/yr
Beryllium:	3	lb/10^12 Btu =	2.10E-03 ton/yr	2.10E-06 ton/yr
Cadmium:	3	lb/10^12 Btu =	2.10E-03 ton/yr	2.10E-06 ton/yr
Chromium:	3	lb/10^12 Btu =	2.10E-03 ton/yr	2.10E-06 ton/yr
Lead:	9	lb/10^12 Btu =	6.31E-03 ton/yr	6.31E-06 ton/yr
Manganese:	6	lb/10^12 Btu =	4.20E-03 ton/yr	4.20E-06 ton/yr
Mercury:	3	lb/10^12 Btu =	2.10E-03 ton/yr	2.10E-06 ton/yr
Nickel:	3	lb/10^12 Btu =	2.10E-03 ton/yr	2.10E-06 ton/yr
Selenium:	15	lb/10^12 Btu =	1.05E-02 ton/yr	1.05E-05 ton/yr
		Total HAPs =	2.38E-02 ton/yr	2.38E-05 ton/yr

The following calculations determine the amount of emissions created by waste oil combustion, from asphalt heating, @ 0.0072 % lead, based on 8,760 hours of use and US EPA's AP-42, 5th Edition, Section 1.11 - Waste Oil Combustion, Tables 1.11-1, 1.11-2, 1.11-3, and 1.11-4.

Hazardous Air Pollutants (HAPs): 160 MMBtu/hr * 8760 hr/yr / 140,000 Btu/gal * 2000 lb/ton * 1000 gal/kgal * Ef (lb/1000 gal) = (ton/yr)

			Potential To Emit	Limited Emissions
Lead:	0.396	lb/1000 gal =	1.98 ton/yr	1.98E-03 ton/yr
Arsenic:	0.11	lb/1000 gal =	0.55 ton/yr	5.51E-04 ton/yr
Cadmium:	0.0093	lb/1000 gal =	0.05 ton/yr	4.66E-05 ton/yr
Chromium:	0.02	lb/1000 gal =	0.10 ton/yr	1.00E-04 ton/yr
Cobalt:	0.00021	lb/1000 gal =	0.00 ton/yr	1.05E-06 ton/yr
Manganese:	0.068	lb/1000 gal =	0.34 ton/yr	3.40E-04 ton/yr
Nickel:	0.011	lb/1000 gal =	0.06 ton/yr	5.51E-05 ton/yr
		Total HAPs =	3.08 ton/yr	3.08E-03 ton/yr

*** * aggregate drying: drum-mix plant * ***

The following calculations determine the amount of HAP emissions created by aggregate drying before & after controls, based on 8,760 hours of use and USEPA's AP-42, 5th Edition, Section 11.1 - Hot Mix Asphalt Plants, Table 11.1-9 for a continuous mix dryer which can be fired with fuel oil . The HAP emission factors represent the worst case emissions.

Pollutant: Ef lb/ton x 400 / 2000 lb/ton ton/hr x 8760 hr/yr

Hazardous Air Pollutants (HAPs):		Potential To Emit	Limited Emissions
Acetaldehyde:	6.40E-04 lb/ton =	1.12 ton/yr	1.12 ton/yr
Benzene:	3.50E-04 lb/ton =	0.61 ton/yr	0.61 ton/yr
Ethylbenzene:	3.30E-03 lb/ton =	5.78 ton/yr	5.78 ton/yr
Formaldehyde:	8.60E-04 lb/ton =	1.51 ton/yr	1.51 ton/yr
Quinone:	2.70E-04 lb/ton =	0.47 ton/yr	0.47 ton/yr
Toluene:	1.80E-03 lb/ton =	3.15 ton/yr	3.15 ton/yr
****Total Polycyclic Organic Matter (POM):**	1.270E-04 lb/ton =	0.22 ton/yr	0.22 ton/yr
Xylene:	4.30E-03 lb/ton =	7.53 ton/yr	7.53 ton/yr
	Total HAPs =	20.41 ton/yr	20.41 ton/yr

** total POM includes 2-Methylnapthalene, Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Fluoranthene, Fluorene, Naphthalene, Phenanthrene, and Pyrene.

*** * summary of source HAP emissions potential to emit * ***

Hazardous Air Pollutants (HAPs):

Acetaldehyde:	**1.121**	ton/yr
Arsenic:	**0.551**	ton/yr
Benzene:	**0.613**	ton/yr
Beryllium:	**0.002**	ton/yr
Cadmium:	**0.047**	ton/yr
Chromium:	**0.100**	ton/yr
Cobalt:	**0.001**	ton/yr
Ethylbenzene:	**5.782**	ton/yr
Formaldehyde:	**1.507**	ton/yr
Lead:	**1.982**	ton/yr
Manganese:	**0.340**	ton/yr
Mercury:	**0.002**	ton/yr
Nickel:	**0.055**	ton/yr
Quinone:	**0.473**	ton/yr
Selenium:	**0.011**	ton/yr
Toluene:	**3.154**	ton/yr
Total POM:	**0.223**	ton/yr
Xylene:	**7.534**	ton/yr
Total:	**23.496**	**ton/yr**

*** * summary of source HAP limited emissions * ***

Hazardous Air Pollutants (HAPs):

Acetaldehyde:	**1.121**	ton/yr
Arsenic:	**0.001**	ton/yr
Benzene:	**0.613**	ton/yr
Beryllium:	**0.000**	ton/yr
Cadmium:	**0.000**	ton/yr
Chromium:	**0.000**	ton/yr
Cobalt:	**0.000**	ton/yr
Ethylbenzene:	**5.782**	ton/yr
Formaldehyde:	**1.507**	ton/yr
Lead:	**0.002**	ton/yr
Manganese:	**0.000**	ton/yr
Mercury:	**0.000**	ton/yr
Nickel:	**0.000**	ton/yr
Quinone:	**0.473**	ton/yr
Selenium:	**0.000**	ton/yr
Toluene:	**3.154**	ton/yr
Total POM:	**0.223**	ton/yr
Xylene:	**7.534**	ton/yr
Total:	**20.409**	**ton/yr**

*** * miscellaneous * ***

326 IAC 7 Compliance Calculations:

The following calculations determine the maximum sulfur content of No. 4 distillate fuel oil allowable by 326 IAC 7:

0.5 lb/MMBtu x 146,000 Btu/gal= 73 lb/1000gal

73 lb/1000gal / 149 lb/1000 gal = 0.5 %

Sulfur content must be less than or equal to 0.5% to comply with 326 IAC 7.

The following calculations determine the maximum sulfur content of distillate fuel oil allowable by 326 IAC 7:

0.5 lb/MMBtu x 146,000 Btu/gal= 73 lb/1000gal

73 lb/1000gal / 142 lb/1000 gal = 0.5 %

Sulfur content must be less than or equal to 0.5% to comply with 326 IAC 7.

The following calculations determine the maximum sulfur content of waste (residual) oil allowable by 326 IAC 7:

1.6 lb/MMBtu x 140,000 Btu/gal= 224 lb/1000gal

224 lb/1000gal / 147 lb/1000 gal = 1.5 %

Sulfur content must be less than or equal to 1.5% to comply with 326 IAC 7.

326 IAC 6-3-2 Compliance Calculations:

The following calculations determine compliance with 326 IAC 6-3-2 for process weight rates in excess of 30 tons per hour:

limit = 55 * (400 ^ 0.11) - 40 = 66.31 lb/hr or
290.45 ton/yr

Since this emission limit exceeds the PSD source definition of 250 tons/yr and the Subpart I allowable emission limit of 59.75 tons per year, compliance with the PM limit pursuant to 40 CFR 60.90, Subpart I will satisfy the requirements of 326 IAC 6-3-2 and will exempt the source from the requirements of 326 IAC 2-2 (PSD).

PM-10 Emission Limit for Aggregate Dryer:

(99.0 tons PM-10/yr - 34.17 tons PM-10/yr from other souces)
= 80.35 tons PM-10/yr = 18.35 lbs/hr

PM-10 emissions from the aggregate dryer are controlled to 0.2 lbs/hr < 14.80 lbs/hr (Will comply)

40 CFR Part 60.90, Subpart I (Standards of Performance for Hot Mix Asphalt Plants) Compliance Calculations:

The following calculations determine compliance with the NSPS, which limits stack emissions from asphalt plants to 0.04 gr/dscf:

$$\frac{8.58 \text{ ton/yr} * 2000 \text{ lb/ton} * 7000 \text{ gr/lb}}{525{,}600 \text{ min/yr} * 47{,}433 \text{ dscf/min}} = 0.005 \text{ gr/dscf}$$ (will comply)

Allowable particulate emissions under NSPS equate to 71.23 tons per year. 16.26 lbs/hr

Note:
SCFM = 68,200 acfm * (460 + 68)*(1-0.045) / (460 + 265)
= 47,433 scfm

Assumes exhaust gas temperature of 265F, exhaust gas moisture content of 4.5% and exhaust gas flow of 57,211 acfm.